

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Date: December 30, 2003  
Express Mail: ER381188125US

In re application of: V. Castelli, et al

Serial No.: 09/237,646

Filed: January 26, 1999

Docket No.: YO998-220

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Board of Patent Appeals and Interferences  
Washington, D.C. 20231

TRANSMITTAL OF APPEAL BRIEF UNDER 37 CFR 1.192

Sir:

Transmitted herewith, in triplicate is an Appeal Brief with respect to the Notice of Appeal filed October 30, 2003 for the above-identified patent application.

This Appeal Brief is being filed on behalf of other than a small entity.

Authorization is given to charge amount of \$330.00, for filing a Brief in support of appeal in accordance with 37 CFR 1.17(f), to Deposit Account 50-0510. A duplicate copy of this authorization is enclosed.

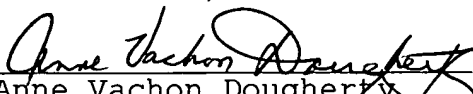
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The Assistant Commissioner is hereby authorized to charge any required additional fee, and charge back any overpayment, to Deposit Account No. 50-0510.

Respectfully submitted,  
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I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of : December 30, 2003  
V. Castelli, et al : Group Art No.: 2172  
Serial No. 09/237,646 : Examiner: C. Truong  
Filed: January 26, 1999 : for IBM Corporation  
Anne Vachon Dougherty  
Title: METHOD AND APPARATUS 3173 Cedar Road  
FOR SIMILARITY RETRIEVAL Yorktown Heights, NY 10598  
FROM ITERATIVE REFINEMENT

Board of Patent Appeals and Interferences  
Washington, D.C. 20231

APPEAL BRIEF (37 CFR 1.192)

Applicant hereby appeals to the Board of Patent Appeals  
and Interferences from the decision dated July 30, 2003 of  
the Primary Examiner finally rejecting Claims 1, 2, 9 and 10

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in the above application, and respectfully request that the Board of Patent Appeals and Interferences consider the arguments presented herein and reverse the Examiner's rejection.

#### I. REAL PARTY IN INTEREST

The appeal is made on behalf of Applicants who are real parties in interest with respect to the subject patent application.

#### II. RELATED APPEALS AND INTERFERENCES

There are no pending related appeals or interferences with respect to the subject patent application.

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### III. STATUS OF CLAIMS

There are twelve (12) claims pending in the subject patent application, numbered 1-12. Claims 5-8 are allowed. Claims 3, 4, 11, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Claims 1, 2, 9, and 10 have been finally rejected.

Claims 1, 2, 9, and 10 are under appeal. The status of Claims 3-8 and 11-12 is not under appeal. A complete copy of the claims is attached hereto, with the claims under appeal presented in bold type.

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#### IV. STATUS OF AMENDMENTS

The status of the prosecution of the application is as follows:

December 19, 2000	-	Office Action rejecting all claims
May 21, 2001	-	Response with no amendments made to claims
July 5, 2001	-	Office Action rejecting Claims 1, 2, 9, and 10
October 5, 2001	-	Response with no amendments made to claims
October 23, 2001	-	Office Action rejecting Claims 1, 2, 9, and 10
February 21, 2002	-	Response with no amendments made to claims
April 30, 2002	-	Office Action rejecting Claims 1, 2, 9, and 10
July 25, 2002	-	Response with no amendments made to claims
August 20, 2003	-	Office Action rejecting Claims 1, 2, 9, and 10
November 20, 2002	-	Response with no amendments made to claims
December 3, 2002	-	Final Office Action rejecting Claims 1, 2, 9, and 10 (withdrawn in response to AAF)

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February 3, 2003	-	Amendment After Final filed (not entered)
February 13, 2003	-	Office Action rejecting Claims 1, 2, 9, and 10
May 13, 2003	-	Amendment filed with amendments to Claims 1 and 9
July 30, 2003	-	Final Office Action rejecting Claims 1, 2, 9, and 10
October 30, 2003	-	Notice of Appeal filed

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#### V. SUMMARY OF INVENTION

The subject invention is a computerized method, apparatus, and program storage device for performing a method for retrieving multidimensional data from a database in response to a user query. The method includes the steps of first searching the database to retrieve data based on the user query; presenting retrieved data to user; receiving user input based on the retrieved data; transforming the database based on the user input to generate a transformed database; successively searching the transformed database to retrieve data; and iteratively repeating steps b through e until the query is satisfied (Claims 1 and 9). The invention further comprises an embodiment wherein the step of transforming the database further comprises reformulating the query based on the user input and wherein the searching of the transformed database further comprises searching the transformed database based on the reformulated query (Claims 2 and 10).



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# VI. STATEMENT OF ISSUES OF APPEAL

There following issues are on appeal:

(1) whether the Examiner erred in rejecting Claims 1 and 9 as unpatentable over the Machihara patent (USP 6,233,578), including:

(1a) whether the Examiner's rejections were supported by the cited teachings;

(1b) whether the Examiner erred in concluding that Machihara teaches receiving user input based on retrieved data;

(1c) whether the Examiner erred in citing one Machihara teachings against two distinct claim features;

(1d) whether the Examiner erred in concluding that the Machihara format conversion of search results is analogous to transforming a database based on user input; and

(1e) whether the Examiner erred in concluding that it would have been obvious to modify Machihara to iteratively refine the query processing by

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repeating the steps of presenting retrieved data to the user, receiving user input based on the retrieved data, transforming the database based on user input, and successively searching the transformed database to retrieve data until the user query is satisfied;

(2) whether the Examiner erred in using the Li patent (USP 6,175,829) in rejecting Claims 2 and 10, including:

(2a) whether the Examiner erred in using the Li patent in combination with the Machihara patent when rejecting Claims 2 and 10, since Applicants had established that the present invention predated the Li patent and had submitted a Declaration of Prior Invention establishing the earlier date and removing the Li patent as a reference; and

(2b) whether the Examiner erred in using the Li patent (USP 6,175,829) in combination with the Anand patent in rejecting Claims 2 and 10, since Applicants had established that the present

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invention predated the Li patent and had submitted a Declaration of Prior Invention establishing the earlier date and removing the Li patent as a reference;

(3) whether the Examiner erred in rejecting Claims 1 and 9 as unpatentable over the Anand patent (USP 5,692,181) including:

(3a) whether the Examiner erred in characterizing a Smart Report in a folder as a database;

(3b) whether the Examiner erred in citing the Anand step of saving a viewed Smart Report in a user-specified code format to both the claim step of receiving user input based on retrieved data and the claim step of transforming the database;

(3c) whether the Examiner erred in analogizing the Anand step of saving a viewed Smart Report in a user-specified format to receiving user input based on retrieved data;

(3d) whether the Examiner erred in analogizing the Anand step of saving a viewed Smart Report in a

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user-specified format to the claim step of transforming the database;

(3e) whether the Examiner erred in characterizing the Anand step of retrieving a saved Smart Report to attach it to an e-mail to the claim step of successively searching the transformed database; and

(3f) whether the Examiner erred in concluding that it would have been obvious to modify Anand to iteratively refine the query processing by repeating the steps of presenting retrieved data to the user, receiving user input based on the retrieved data, transforming the database based on user input, and successively searching the transformed database to retrieve data until the user query is satisfied.

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## VII. GROUPING OF CLAIMS

The Claims can be considered in the following groups for purposes of this appeal:

(I) Group I: Claims 1 and 9, including the method steps for and program storage device for causing a machine to execute the method steps for the invention, said steps comprising: first searching the database to retrieve data based on the user query; presenting retrieved data to user; receiving user input based on the retrieved data; transforming the database based on the user input to generate a transformed database; successively searching the transformed database to retrieve data; and, iteratively repeating steps b through e until the query is satisfied; and

(II) Group II: Claims 2 and 10, the method and program storage device of Claims 1 and 9 wherein the step of transforming the database further comprises reformulating the query based on the user input and wherein the searching of the transformed database further comprises searching the transformed database based on the reformulated query.

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#### VIII. ARGUMENT

##### ARGUMENT (1)

With regard to issue (1) whether the Examiner erred in rejecting Claims 1 and 9 as unpatentable over the Machihara patent (USP 6,233,578), Applicants respectfully submit the following arguments.

The Machihara patent is directed to a system for information retrieval which allows a user to specify the retrieval content and conditions to transparently prepare a search without having to know the names of the databases or their structures. The Machihara system stores reference information for a plurality of databases using keywords. When a user enters a retrieval request, the Machihara language analysis section interprets the request content and converts the request content into keyword which the system will recognize. The Machihara system then uses the keywords to determine which database will contain data to satisfy the user's retrieval request. Once the database is known, an information retrieval statement for the chosen database is prepared and the search is conducted. Once information has

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been retrieved from the database, the search results are formatted for presentation to the user.

Applicants believe, that, as noted in (1a) above, the Examiner's rejections are not supported by the cited teachings. With respect to the claim feature of "first searching a database to retrieve data based on said query", Applicants note that the Examiner has cited the Machihara teachings found at Col. 9, lines 30-65. However, what Machihara teaches in Col. 9 is the comparing of user input keywords to the stored reference information and the selection of a database for the search. No data is retrieved in the steps which Machihara teaches in Col. 9. Applicants have acknowledged that Machihara receives a user query; but do not agree that the cited passage teaches receiving a user query.

Further, as to the claimed step of presenting retrieved data to the user, the Examiner has cited Col. 10, lines 1-20. What is taught in the cited passage of Col. 10 is the calling up of the selected database (see: lines 10-15) and execution of the search against the selected database. Such is not the same as nor suggestive of presenting search results to the user. Applicants acknowledge that Machihara

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does provide retrieved information to the user; however, the passages cited by the Examiner do not teach same. Applicants respectfully assert that the Examiner has cited passages which do not support the Examiner's conclusions.

Applicants next aver that, as stated in (1b) above, the Examiner erred in concluding that Machihara teaches receiving user input based on retrieved data. While Machihara does accept an initial user query, Machihara does not receive refinement input from a user based on user review of presented retrieval results. Under the present invention, iterative refinement of the query is done by accepting user input after the user has reviewed retrieval results. Machihara neither teaches nor suggests that user input can be accepted based on user review of retrieval results. Under Machihara, a user would have to institute a new search, i.e., enter a new query to "refine" a search. The claim language expressly recites "receiving user input based on said retrieved data" to clearly distinguish the user refinement of a query based on review of retrieved results (the present invention) over the initial user input of a query (Machihara).



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Applicants further assert that, as stated in (1c) the Examiner erred in citing one Machihara teaching against two distinct claim steps. The teachings found in Col. 10, lines 15-20 have been cited against the claim feature of "presenting data to user" as well as the feature of "transforming the database based on user input to generate a transformed database". Applicants assert that two distinct claim features cannot be obviated by the same, single teaching.

Applicants further assert that, as stated in (1d) above, the Examiner erred in concluding that the Machihara format conversion of search results is analogous to transforming a database based on user input. Applicants reiterate that the cited passage cannot be teaching both the step of presenting the results to the user and the transforming based on user input. Applicants aver that the cited passage from line 15-line 20 of Col. 10 simply teaches that retrieved results are formatted for display to the user. Formatting search results for display is not the same as, nor it is suggestive of, transforming a database based on user input. Applicants disagree with the Examiner's statement found on page 3 which states that "conversion of

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search results is same as transforming results or database." Applicants are not claiming transforming results. The claim language expressly recites transforming a database...not transforming search results. In detailing transforming of the database, the present Specification teaches modifying the linear transform matrix, transforming the feature space, changing the distance/similarity measures, and weighting features within the database (Claims 1 and 9), and reformulation of the query (Claims 2 and 10), (see: page 16, lines 8-14; page 17, lines 13-16; page 18, lines 14-17; page 19, line 17-page 28, line 3). Clearly transforming the database under the present invention does not simply mean presenting the same content in the same order but in a new format. Formatting does not change the order, the relative distance or other measure, or the weighting of the content of the search results being reformatted, it simply changes the format or "language" in which the same content is presented in the same order. Applicants believe that the Machihara patent passages neither teaches nor suggests transforming the database as is taught and claimed by the present invention.

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Finally, with respect to (1e), Applicants believe that the Examiner erred in concluding that it would have been obvious to modify Machihara to iteratively refine the query processing by repeating the steps of presenting retrieved data to the user, receiving user input based on the retrieved data, transforming the database based on user input, and successively searching the transformed database to retrieve data until the user query is satisfied. Machihara does not teach or suggest any user refinement of a search. While a user of the Machihara system would be free to enter successive searches based on retrieved results, such is not the same as nor is it suggestive of a computerized method wherein a search is automatically iteratively refined by repeating steps of presenting retrieved data to a user, receiving user input based on the retrieved data, transforming the database based on the user input, and successively searching the transformed database to retrieve data to again present to the user for input, and so on until the query is satisfied. Since Machihara provides no mechanism for user input to the query processing after the initial request, it cannot be concluded that successive searching would be conducted. Moreover, since

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any user input to the Machihara system must first be "translated" by comparing it to stored reference information in order to select a database, it would not be possible to refine a query without starting the Machihara process anew. Accordingly, successive searching would be counterproductive in the Machihara system since Machihara provides no additional user input and no change to the database.

It is well established under U.S. Patent Law that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art (*In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F. 2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)). Applicants respectfully assert that there are no teachings, suggestions, or motivations provide by the Machihara patent to modify the Machihara system in such a way as to obviate the invention as claimed. Machihara neither teaches nor suggests accepting user input for query refinement; neither teaches nor suggests transforming its database; neither teaches nor

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suggests searching a transformed database; and, neither teaches nor suggests iteratively repeating the steps until a user query is satisfied, and Machihara does not, therefore, render the claims obvious.

ARGUMENT (2)

Applicants respectfully assert that (2) the Examiner erred in using the Li patent (USP 6,175,829) in combination with (2a) the Machihara patent and (2b) the Anand patent in rejecting Claims 2 and 10.

In the course of prosecution of the patent application, in a response which was filed on February 21, 2002, Applicants submitted a Declaration of Prior Invention. In the Declaration of Prior Invention, the Applicants established completion of the invention at a date prior to March 16, 1998, which was the effective date of the Graefe patent. In establishing the earlier date, Applicants provided a copy of the invention disclosure form which was signed by each of the inventors on December 18, 1997. The Declaration established the earlier invention, thereby removing the Graefe patent as a reference. The Declaration also removed the Li patent as a reference, since the

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effective date of the Li patent was April 22, 1998. Applicants brought this fact to the attention of the Examiner in the responses filed on July 25, 2002, on November 20, 2002, and on February 3, 2002.

Applicants further note that, in the Office Action dated February 13, 2003 in which the Examiner withdrew the finality of the previous Office Action, the Examiner stated that "Examiner agreed with the applicant that the Declaration established completion of the invention in the United States at a date prior to the effective date of the Li patent. Therefore, the finality of the office action 12/3/03 (*sic, referring to Final Office Action 12/3/02*) is withdrawn." Accordingly, Applicants contend that the Examiner erred in citing the Li patent when rejecting Claims 2 and 10.

#### ARGUMENT (3)

Applicants respectfully content that the Examiner erred in rejecting Claims 1 and 9 as unpatentable over the Anand patent (USP 5,692,181).

The Anand reference is directed to a system and method for generating reports from a computer database by

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organizing the data within the database into columns of tables and simply retrieving the columns of tables and assembling them into a Smart Report based on an initial user retrieval "request". The initial user retrieval "request" comprises a set of parameters including the analyst component (e.g., trend analysis analyst), measures, and time segments, such as a base period and a comparison period. The reports are generated "without requiring the user to understand or interpret data itself" (see: Abstract). The user specifies the parameters and the Smart Reports are assembled and presented to the user. The Smart Reports may be stored for future review.

Applicants first aver that (3a) the Examiner erred in characterizing a Smart Report in a folder as a database. Smart Reports are defined in the Anand patent as "compound documents that display data from a database in text and graphics (e.g., graphs, tables)" (see: Col. 4, lines 39-40). Clearly it cannot be maintained that Smart Reports in folders are databases when Anand expressly defines the reports as documents that display data from a database.

The Smart Reports are assembled in response to a user query and may then be stored and again retrieved.

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Applicants respectfully assert that retrieving a pre-assembled Smart Report is not the same as, nor is it suggestive of, searching a database to retrieve data based on a user query as claimed.

Applicants next assert that (3b) the Examiner erred in analogizing the Anand step of saving a viewed Smart Report in a user-specified code format to both the claim step of receiving user input based on retrieved data and the claim step of transforming the database. Applicants again note that one passage of the reference is being cited against two distinct features of the claims. Applicants assert that the one Anand step cannot obviate two distinctly claimed steps of the present invention.

With regard to (3c), the Examiner has cited the teachings from Col. 9, lines 25-30 regarding a user request to save the Smart Report as an HTML file in either UNICODE or ASCII format against the claim step of receiving user input based on retrieved data. Applicants respectfully assert that the cited teachings do not teach or suggest the claim step of receiving user input based on retrieved data. The Anand user opts to save a report and selects the format



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based on the user's storage requirements. The Anand user does not provide input based on the retrieval results.

Applicants further assert, as stated above in (3d) that the Anand step of saving a viewed Smart Report in a user-specified code format does not obviate the claim step of transforming the database based on user input. Converting a Smart Report to a user-specified format, either UNICODE or ASCII, is not transforming the database from which the search results were obtained. The Smart Report is a document extracted from the database and is not the database. Moreover, the Smart Report is being formatted for storage but is not being transformed. Formatting does not change the content of the Smart Report, it simply changes the format or "language" in which the same content is stored. As detailed above, the present Specification details transforming the database in terms of modifying the linear transform matrix, transforming the feature space, changing the distance/similarity measures, changing the weighting features within the database (Claims 1 and 9), and reformulation of the query (Claims 2 and 10), (see: page 16, lines 8-14; page 17, lines 13-16; page 18, lines 14-17; page 19, line 17-page 28, line 3). Clearly transforming the

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database under the present invention does not simply mean presenting the same content in the same order but in a new format. Formatting does not change the order, the relative distance or other measure, or the weighting of the content of the search results being reformatted, it simply changes the format or "language" in which the same content is stored in the same order. Applicants conclude that the Anand teachings of formatting for storage do not teach or suggest the claimed transforming of the database.

Applicants next argue that, as stated as issue (3e), the Examiner erred in characterizing the Anand step of retrieving a saved Smart Report to attach it to an e-mail to the claim step of successively searching the transformed database. Applicants again note that the Smart Report comprises a document that displays data which has been retrieved from a database. The pre-assembled Smart Report may have been saved in a user-specified format. When a user wishes to view the saved Smart Report, the user may retrieve the Smart Report from local storage. Retrieving the formatted Smart Report from storage is not the same as nor suggestive of successively searching a transformed database. Applicants have established that the Smart Report is not a

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database and that Anand's formatting of a Smart Report for storage does not obviate the claimed transforming of the database to generate a transformed database. Clearly retrieving a formatted and stored Smart Report does not obviate searching a transformed database.

Finally, Applicants assert that (3f) the Examiner erred in concluding that it would have been obvious to modify Anand to iteratively refine the query processing by repeating the steps of presenting retrieved data to the user, receiving user input based on the retrieved data, transforming the database based on user input, and successively searching the transformed database to retrieve data until the user query is satisfied. The Examiner states on page 7 of the Office Action that "[the Anand teachings of retrieving a saved Smart Report for attaching to an e-mail] implies that it is obvious to repeat step (*sic*) b through e in order to return to the user a result." Applicants respectfully disagree. The Anand teaching of retrieving a stored Smart Report does not include presenting retrieved search results to the user, receiving user input based on retrieved results, transforming the database based on user input to generate a transformed database, and successively

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searching the transformed database to retrieve data for presenting to the user, as so on. Anand simply retrieves a pre-assembled Smart Report from local storage. Anand does not perform the claimed steps on a transformed database.

It is well established under U.S. Patent Law that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art (*In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F. 2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)). Applicants respectfully assert that there are no teachings, suggestions, or motivations provide by the Anand patent to modify the Anand system in such a way as to obviate the invention as claimed. Anand neither teaches nor suggests accepting user input for query refinement; neither teaches nor suggests transforming its database; neither teaches nor suggests searching a transformed database; and, neither teaches nor suggests iteratively repeating the steps until a user query is satisfied. Accordingly, Anand does not obviate the claims.



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#### CONCLUSION

Applicants respectfully assert that the Examiner has erred in rejecting Claims 1 and 9 as unpatentable over the Machihara patent, has erred in rejecting Claims 1 and 9 as unpatentable over the Anand patent, and has erred in citing the Li patent against Claims 2 and 10. Applicants believe that the references do not provide the teachings which the Examiner has suggested, and that the cited teachings do not obviate the claims.

In light of the foregoing arguments, Applicants request that the decision of the Examiner rejecting Claims 1, 2, 9, and 10 be overturned by the Board and that the claims be passed to issuance.

Respectfully submitted,  
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APPENDIX OF CLAIMS

Claims in **bold type** are under appeal

1. A computerized method for retrieving multidimensional data from a database in response to a user query, comprising the steps of:
  - a. first searching said database to retrieve data based on said query;
  - b. presenting retrieved data to user;
  - c. receiving user input based on said retrieved data;
  - d. transforming said database based on said user input to generate a transformed database;
  - e. successively searching said transformed database to retrieve data; and
  - f. repeating steps b through e until the results for the said query is satisfied by the user.
2. The method of Claim 1 wherein said step of transforming said database further comprises reformulating the query based on said user input and wherein said searching said

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transformed database comprises searching said transformed database based on said reformulated query.

3. The method of Claim 1 further comprising extracting indices from said database and wherein said searching is preceded by retrieving indices to focus said search on indexed information in said database.

4. The method of Claim 3 wherein said successively searching transformed database comprises applying said extracted indices to said transformed database.

5. Apparatus for performing retrieval of information in response to a user query in a system having at least one client location and at least one server location comprising:

a. at least one database storing said information at said at least one server;

b. a multidimensional indexing engine at said at least one server for maintaining indices related to information in said at least one database and for retrieving said indices in response to said query;

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c. a similarity query engine at said server for conducting searches of said at least one database in response to a query;

wherein said similarity query engine receives information regarding said retrieved indices from said multidimensional indexing engine for identifying database areas to be searched.

6. The apparatus of Claim 5 further comprising means for displaying retrieved information at said client location and for receiving user input regarding said retrieved information.

7. The apparatus of Claim 6 wherein said multidimensional indexing engine is adapted to refine said indices based on said user input.

8. The apparatus of Claim 6 wherein each of said at least one server location additionally comprises processor means for reformulating said query based on said user input.



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9. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for retrieving multidimensional data from a database in response to a user query, said method steps comprising:

- a. first searching said database to retrieve data based on said query;
- b. presenting retrieved data to user;
- c. receiving user input based on said retrieved data;
- d. transforming said database based on said user input to generate a transformed database;
- e. successively searching said transformed database to retrieve data; and
- f. repeating steps b through e until said query is satisfied.

10. The device of Claim 9 wherein said method step of transforming said database further comprises reformulating the query based on said user input and wherein said searching said transformed database comprises searching said transformed database based on said reformulated query.

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11. The device of Claim 9 wherein said method further comprises extracting indices from said database and wherein said searching is preceded by retrieving indices to focus said search on indexed information in said database.

12. The device of Claim 11 wherein said successively searching transformed database comprises applying said extracted indices to said transformed database.